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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
PANDE, SUCHIRA	

ART UNIT	PAPER NUMBER
1637	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/578,938	KLUSSMANN ET AL.	
	Examiner	Art Unit	
	SUCHIRA PANDE	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/23/2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-78* is/are pending in the application.

4a) Of the above claim(s) *3, 8 and 10-78* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-7 and 9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/25/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I invention (claims 1-12) in the reply filed on September 23, 2008 is acknowledged. Applicant has also elected following species:

a. Species of the type of nucleic acid (claim 1 is generic) option i. wherein the nucleic acid is a L-nucleic acid (claim 7).

b. Species of nucleic acid based on structure (claim 1 is generic) option v. wherein the nucleic acid has a secondary structure shown in Fig. 1B (claim 9).

c. Species of nucleic acid based on binding to ghrelin (claim 1 is generic) option xxii. The nucleic acid which specifically binds to a bioactive ghrelin (claims 2, 4).

Claims 1-2, 4-7 and 9 are commensurate with above elections and will be examined in this action.

2. Claims 3, 8, 10-78 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on September 23, 2008.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 7/25/06 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Sequence Rules Compliance

3. This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 C.F.R. § 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 C.F.R. §§ 1.821-1.825 for the reason(s) set forth on the attached Notice To Comply With Requirements For Patent Applications Containing Nucleotide Sequence And/Or Amino Acid Sequence Disclosures. Applicant must comply with the requirements of the sequence rules (37 CFR 1.821 - 1.825) before the application can be examined under 35 U.S.C. §§ 131 and 132.

Applicant is given time of reply to this office action within which to comply with the sequence rules, 37 C.F.R. §§ 1.821-1.825. Failure to comply with these requirements will result in **abandonment** of the application under 37 C.F.R. § 1.821(g). Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 C.F.R. § 1.136. In no case may an applicant extend the period for response beyond the six month statutory period. Direct the response to the undersigned.

Fig 1B in the drawing shows a nucleotide sequence that is not identified by its SEQ ID No. anywhere in the specification. If this sequences is included in the sequence

listing provide by Applicant, the specification should be amended to include the SEQ ID NOs. If these sequences were not included in the sequence listing filed on 5/9/06. Applicant should provide a substitute sequence listing and a CRF that include those sequences.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-2, 4-7 and 9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In analysis of the claims for compliance with the written description requirement of 35 U.S.C. 112, first paragraph, the written description guidelines note regarding genus/species situations that "Satisfactory disclosure of a "representative number" depends on whether one of skill in the art would recognize that the applicant was in possession of the necessary common attributes or features of the elements possessed by the members of the genus in view of the species disclosed." (See: Federal Register: December 21, 1999 (Volume 64, Number 244), revised guidelines for written description.)

All of the current claims encompass a genus of nucleic acids which are different from those disclosed in the specification. The genus includes variants for which no written description is provided in the specification. Review of the specification indicates that this large genus is represented in the specification by only **one** particularly named SEQ ID NO. The sequence identified by SEQ ID NO: 1 is disclosed as the nucleic acid that binds to a bioactive ghrelin.

Thus, applicant has express possession of only one particular nucleic acid sequence identified by SEQ ID NO 1 which binds to bioactive ghrelin, in a genus which comprises hundreds of millions of different possibilities. Here, no common element or attributes of the sequences are disclosed, not even the presence of certain domains that are required for this binding to occur. No structural limitations or requirements which provide guidance on the identification of sequences which meet the functional limitation i.e. binding to bioactive ghrelin, is provided. Further, these claims encompass nucleic acid variants that are not normally present in nature including L-nucleic acids; nucleic acids which have a secondary structure. No written description of what domains are conserved in the secondary structure has been provided provided in the specification.

It is noted in the recently decided case The Regents of the University of California v. Eli Lilly and Co. 43 USPQ2d 1398 (Fed. Cir. 1997) decision by the CAFC that

> "A definition by function, as we have previously indicated, does not suffice to define the genus because it is only an indication of what the gene does, rather than what it is. See Fiers, 984 F.2d at 1169- 71, 25 USPQ2d at

> 1605- 06 (discussing Amgen). It is only a definition of a useful result rather than a definition of what achieves that result. Many such genes may achieve that result. The description requirement of the patent statute requires a description of an invention, not an indication of a result that one might achieve if one made that invention. See In re Wilder, 736 F.2d 1516, 1521, 222 USPQ 369, 372- 73 (Fed. Cir. 1984) (affirming rejection because the specification does "little more than outlin[e] goals appellants hope the claimed invention achieves and the problems the invention will hopefully ameliorate."). Accordingly, naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not a description of that material. "

In the current situation, the recitation of a single SEQ ID sequence as nucleic acid which binds to a bioactive ghrelin does not provide guidance as to specific structure required to be present in the numerous variants to be able to bind to bioactive ghrelin, is precisely the situation of naming a type of material which is generally known to likely exist, but, except for one specific SEQ ID NO, is in the absence of knowledge of the material composition and fails to provide descriptive support for the generic claim to "a nucleic acid which binds to a bioactive ghrelin", for example.

It is noted that in Fiers v. Sugano (25 USPQ2d, 1601), the Fed. Cir. concluded that

> "...if inventor is unable to envision detailed chemical structure of DNA sequence coding for specific protein, as well as method of obtaining it, then conception is not achieved until reduction to practice has occurred, that is, until after gene has been isolated...conception of any chemical substance, requires definition of that substance other than by its functional utility."

The current situation is a definition of the compound solely but its functional utility, as a sequence that binds to bioactive ghrelin, without any definition of the various variants claimed.

In the instant application, one specific SEQ ID NOs is described that binds bioactive ghrelin. Also, in Vas-Cath Inc. v. Mahurkar (19 USPQ2d 1111, CAFC 1991), it was concluded that:

> "...applicant must also convey, with reasonable clarity to those skilled in art, that applicant, as of filing date sought, was in possession of invention, with invention being, for purposes of "written description" inquiry, whatever is presently claimed."

In the application at the time of filing, there is no record or description which would demonstrate conception of any nucleic acids other than those expressly disclosed which comprise sequence of SEQ ID NO 1. Therefore, the claim 1 as recited fails to meet the written description requirement by encompassing sequences which are not described in the specification.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-2, 4-7 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Helmling et al. (WO 2004/013274 A2 filed as application PCT/EP2003/008542 with

international filing date August 1, 2003 cited by Applicant in IDS) as evidenced by Bednarek et al. (2000) J. Med. Chem 43: 4370-4376 provided to applicant previously).

Regarding claim 1, Helmling et al. teach a nucleic acid which binds to a bioactive ghrelin (see title. See page 1 par. 2 where it is taught that Octonylation of N terminus serine 3 is required for interaction of ghrelin with its receptor. Thus Helmling et al. teach octonylated ghrelin as the bioactive ghrelin. See page 8 par. 2 where nucleic acids binding specifically and with high affinity to ghrelin are taught. Thus Helmling et al. teach a nucleic acid which binds to a bioactive ghrelin).

Regarding claim 2, Helmling et al. teach the nucleic acid which specifically binds to a bioactive ghrelin (see title. See page 1 par. 2 where it is taught that Octonylation of N terminus serine 3 is required for interaction of ghrelin with its receptor. Thus Helmling et al. teach octonylated ghrelin as the bioactive ghrelin. Also see page 2 last par. where an antagonist of ghrelin is taught. In a preferred embodiment this antagonist is a nucleic acid binding to ghrelin is taught. Thus teaching the nucleic acid which specifically binds to a bioactive ghrelin)

Regarding claim 4, Helmling et al. teach wherein the specific binding is expressed as the Kd value (see page 11 par. 2 where the specific binding of nucleic acid is expressed as the Kd value).

Regarding claim 5, Helmling et al. teach wherein the bioactive ghrelin is n-octanoyl ghrelin (see page 24 target molecule where Octanoyl residude is shown linked to Ser3 of ghrelin. Thus teaching bioactive ghrelin is n-octanoyl ghrelin).

Regarding claim 6, Helmling et al. teach the nucleic acid of claim 5, but do not explicitly describe wherein the n-octanoyl moiety of the n-octanoyl ghrelin is attached through an ester bond to Ser at position 3 of ghrelin.

Regarding claim 6, Bednarek et al. evidence the fact that the n-octanoyl ghrelin is attached through an ester bond to Ser at position 3 of ghrelin (see page 4371 where sequence of human ghrelin is depicted with octanoyl ghrelin shown attached to Ser at position 3 of ghrelin. Further see page 4372 last par. where Bednarek et al. teach that ghrelin is posttranslationally modified, through acylation of the hydroxyl group of Ser 3 by n-octanoic acid. In this situation, the bond formed between the OH group of serine and N-octanoic acid (whose sequence is shown in page 4371) through acylation can only result in an ester bond. The conclusion reached by Examiner that n-octanoic acid is connected to Ser3 via an ester bond in the ghrelin is further corroborated by statement on page 4374, where Bednarek et al. state "to evaluate a role of the ester bond in the side chain of residue 3----". Thus Bednarek et al. teach wherein the n-octanoyl moiety of the n-octanoyl ghrelin is attached through an ester bond to Ser at position 3 of ghrelin).

Regarding claim 7, Helmling et al. teach wherein the nucleic acid is a L-nucleic acid (See page 12 last section on the page where generation of L-nucleic acid that binds to ghrelin is taught).

Regarding claim 9, Helmling et al. teach wherein the nucleic acid has a secondary structure shown in Fig. 1B. (See page 29/61 of the Figures where Fig. 19 of Helmling et al. is depicted. The secondary structure labeled as clone B11trc is shown on

right. This clone B11trc has a secondary structure that is 100% identical to the secondary structure shown in Fig. 1B of instant application).

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claim 1 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of the copending Application No. 10/522,582. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the applications contain claims directed to a nucleic acid which binds ghrelin. At the outset Examiner would like to point out that in instant application Applicant is using the term "bioactive ghrelin" while in Application 10/522, 582 the Applicant is using the term "ghrelin" both these terms are referring to same molecule.

This is evidenced by the fact that in Application 10/522, 582 par. 0002 it is stated "Ghrelin is a highly basic 28 amino acid peptide hormone with an octanoyl acid side chain at the third amino acid of its N-terminus (serine 3). This unusual modification is required for the interaction at the GHS-receptor and its activity." The same molecule with an octanoyl acid side chain at the third amino acid of its N-terminus (serine 3). is being referred to as bioactive ghrelin in the instant application.

With this in mind, it is clear that claim 1 of instant application is broader as it is directed to a nucleic acid which binds to a bioactive ghrelin. This claim 1 in instant application is not limited to a specific SEQ ID NO.

The claim 1 of the copending application 10/522,582 is narrower in scope as it limits the sequence of nucleic acid to SEQ ID NO 8 that binds to ghrelin.

Thus claim 1 of instant application is genus claim while the claim 1 of the copending application 10/522,582, is claiming one specific SEQ ID that binds ghrelin. Since species anticipates the genus hence claim 1 of instant application drawn to a nucleic acid which binds bioactive ghrelin is obvious over the claim 1 of the copending application 10/522,582.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

10. All claims under consideration 1-2, 4-7 and 9 are rejected.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUCHIRA PANDE whose telephone number is (571)272-9052. The examiner can normally be reached on 8:30 am -5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 571-272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Suchira Pande
Examiner
Art Unit 1637

/Teresa E Strzelecka/

Primary Examiner, Art Unit 1637

November 25, 2008